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A study was conducted to investigate the effects of interaction analysis feedback on the verbal behavior of student teachers. Forty randomly selected senior elementary education students at the University of South Florida were trained in interaction analysis, and each was observed for eight weekly 15-minute periods during student teaching. Data, collected from systematic observations by four trained observers using a 13-category modification of the Flanders System of Interaction Analysis, were submitted to an IBM 1410 computer which produced matrices and information sheets weekly for the 40 students. Only the 20 designated as the "feedback group" (experimental) received the weekly matrices and information sheets. Data were analyzed by means of a Lindquist Type I analysis of variance, and F-tests for group means difference were computed for each of the 24 selected dependent variables. Findings included these: The experimental group used significantly less teacher-initiated talk and significantly more student-initiated talk than did the control group. They also used more praise, more extended use of student ideas, and less corrective feedback. They accepted and clarified student ideas more, criticized students less, asked more questions, and gave fewer directions. (Implications for preservice and inservice programs are discussed.) (JS)

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Feedback in the Form of Printed Interaction Analysis Matrices as a Technique for Training Student Teachers*

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It is assumed, all things being equal, that the teachers who are aware of and able to utilize a variety of appropriate verbal behaviors will be able to facilitate more learning in their classrooms. If this assumption is true, then we must provide experiences whereby prospective teachers and inservice teachers can become more aware of and flexible in using a variety of appropriate teaching behaviors related to positive student attitudes toward school, their teachers, and student achievement.

Student teachers need to have the opportunity to try out a variety of teaching behaviors in teaching situations. Such opportunity exists in the student teaching phase of a teacher education program when student teachers are allowed to teach children in the classroom under the supervision of a directing teacher. From the college in which the student teacher is enrolled a university faculty member is assigned to each student teacher to assist him into his introduction into teaching. The process of supervision on the part of the university supervisor usually involves sitting down with a student teacher from time to time to discuss a sample of his teaching behavior with particular reference to how it might be improved. It permits a student teacher to see in objective terms the effectiveness of his teaching performance. This approach does not seem effective in practice, however (Lantz, 8). Some writers are inclined to attribute the lack of success to a failure of the university supervisor to perform the crucial function of feeding back to the student teacher accurate and comprehensive evaluative information about his verbal

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behavior (Lantz, 8) (Amidon and Powell, 1). Part of this failure may be attributed to lack of objective means for analyzing the teaching behavior of a student teacher. Apparently there is a need for some means of assessing the nature of the verbal behavior of a student teacher to provide him with the information necessary for improving his teaching performance.

Recently, the process of systematic observation of classroom interaction has been developed and shows great promise as a feedback mechanism. An observational system is defined here as any systematic technique for identifying, classifying, and quantifying specific teaching activities. Of the observational systems currently available, Flanders' System of interaction analysis (2) is probably the most widely known and used. Basically, this tool consists of categorizing verbal behaviors of students and teachers under a number of headings, then searching for patterns that might reveal characteristics of effective teaching. Several modifications of Flanders' System have been developed including the thirteen category system (Hough, 6) used in the study described in this paper.

The modification of the Flanders System employs a thirteen category scheme, which falls into three broad divisions: (1) teacher talk, (2) student talk, and (3) silence or confusion. Teacher talk is classified as either direct or indirect influence. Indirect influence is defined as actions taken by a teacher to encourage and support student participation; direct influence as those acts that restrict student participation.

There are five categories of indirect teacher influence: (1) accepting student feeling, (2) giving praise, (3) accepting or using ideas of students, (4) asking a question, (5) answering a student question; four categories of direct teacher influence: (6) lecturing, giving facts or opinions, (7) giving directions, (8) giving corrective feedback, (9) critizing or justifying authority; and three categories of student talk: (10) teacher-initiated student talk, (11) student questions, (12) student-initiated student talk.

The last category (13) is used for silence or periods of confusion in which communication cannot be understood by an observer.

The results of research in teacher education indicate that there were significant differences between the verbal behavior of student teachers trained in interaction analysis and those not so trained, (Hough and Amidon, 4) (Furst, 3) (Hough and Ober, 5) (Kirk, 7). The writer has attempted to extend this research in teacher education by isolating the variable of feedback and studying its effect on the verbal behavior of two groups of student teachers trained in interaction analysis. By isolating this variable the writer hopes to demonstrate that feedback from systematic observations of classroom teaching as well as training in interaction analysis can aid student teachers in becoming more aware of their teaching behavior and the effect of their teaching behavior on others.

The current lack of feedback procedures for student teachers constitutes an extremely important problem area which is worthy of further investigation and forms the focus of this study.

THE STUDY

The purpose of the study was to investigate the effects of interaction analysis feedback on the verbal behavior of student teachers. Forty randomly selected senior students in the elementary education program at the University of South Florida were trained in interaction analysis the quarter preceding their student teaching. In the quarter following the training, the forty students were observed weekly for fifteen minutes each while they were engaged in student teaching. Data were collected from systematic observations conducted by four trained observers using a thirteen category modification of the Flanders System of interaction analysis.

The data were submitted to an IBM 1410 computer which produced matrices and information sheets weekly for the forty students. Twenty of the subjects designated as the "feedback group" (experimental) received the weekly matrices

and information sheets while twenty designated as the nonfeedback group (control) did not receive such feedback. At the conclusion of eight weeks of observations, the data collected were analyzed by means of a Lindquist Type I Analysis of Variance. F-tests for group means difference were computed for each of the twenty-four selected dependent variables. At least 96,000 tallies were recorded for the total sample of this study (twenty teachers who received interaction analysis feedback and twenty who did not) during 80 hours of observations by four trained observers.

The independent variables of the study were (a) the feedback provided for the experimental group and (b) the lack of feedback in the control group. The dependent variables (the criteria by which change was examined) were the selected observed verbal behaviors of student teachers generated by them during their teaching experience. The specific dependent variables as measured by a thirteen category modification of the Flanders System of interaction analysis were: total use of each category (with the exception of category one and thirteen); the student-teacher ratio; total number of occupied matrix cells; indirect-direct ratio; and ten other specific verbal patterns as measured by certain matrix cells.

RESULTS AND DISCUSSION

Significant F-Ratios for group means difference were obtained in fifteen of the twenty-four analyses of the study.

The results of this study clearly show that those student teachers who received interaction analysis feedback differed significantly from those student teachers who did not receive such feedback in their use of the following teacher verbal behaviors: (1) they used more praise: (2) they accepted and clarified student ideas more; (3) they used more indirect teacher talk as opposed to direct teacher talk; (4) they used more extended praise; (5) they had more extended use of student ideas; (6) they used more positive affective talk;

(7) they accepted student ideas more after teacher-initiated student talk; (8) they used more positive reinforcement after teacher-initiated student talk; (9) they used less corrective feedback; (10) they criticized student less; (11) they asked more questions; (12) they used less lecture; (13) they gave less directions. In addition, there was significantly less teacher-initiated talk and significantly more student-initiated student talk in the student teacher group receiving feedback.

Some Implications for the Improvement of Teacher Training Programs

In educational and psychology courses too often there is some lip service given to the importance of verbal behaviors, but there is still an emphasis on abstract information concerning behavior from the printed page. Until recently there have been only feeble attempts to abstract information directly from observed verbal behavior. Generally, instructors have taught students to read about behavior and not how to "read behavior itself."

Although interaction analysis has been found to be an effective feedback mechanism, we still find many student teachers who have little or no opportunity to utilize feedback from systematic observations made of their own verbal behavior. Feedback usually comes from college supervisors and directing teachers, who through observations made without the use of recognized observational instruments (those useless check lists) limit their comments to such time worn cliches as "that student teacher really geta s lot of class participation."

How can we utilize feedback in student teaching? First, we can employ observational systems such as the Flanders System or modifications of that system to help student teachers get feedback of their own behavior. One of the breakthroughs of the Flanders System is the two-dimensional grid or matrix which has cells indicating sequences of behaviors. It is possible to ask such questions as "what does a teacher typically do immediately after a

pupil stops talking?" "How long does the teacher lecture when she begins, on the average?" "Does it ever happen that a pupil feels free enough to interrupt the teacher's lecture?" "What is the relative proportion of direct versus indirect teacher behavior?" Most people who work with the Flanders System identify as many as thirty or forty different measures derived from a matrix, and the Northwest Regional Educational Laboratory has examined more than three hundred measured so derived in its research on teacher behavior.

Student teaching is a time when students should be encouraged to try out and learn a variety of teaching techniques. If both students and supervisors are trained in advance in the use of one or more techniques for categorizing behavior, it is possible for the supervisor and student teacher to use a common language when discussing classroom behaviors. Such common language helps to establish positive rapport between the supervisor and teacher by reducing particially the threat of the supervisor that often results from purely subjective judgement. It becomes easy for a student teacher to agree in advance with the supervisor on certain behaviors to be tried out in particular situations. Knowing a system also would suggest a wider repertoire of behaviors that might be explored. Supervisors can collect raw data in terms of a system, then assist teachers interpreting the data, and finally give them support as they attempt to move behaviorally in the direction believed best.

As student teachers become well versed in the use of one observational system they might want to learn other systems and employ a variety of observational systems in conjunction with each other. Tangible evidence in these forms would permit student teachers to consider their teaching behavior from several vantage points.

And how can we utilize feedback in inservice training of teaching? Many school districts have been trying in the last few years to train supervisors

and teachers in the use of various observational systems. If certain innovative school programs such as A.A.A.S. elementary science emphasize student participation, and the use of indirect teacher behavior, one might want a description of how a teacher behaves while he is teaching A.A.A.S. science. This writer trained a group of elementary teachers in the use of an observational system prior to their training in A.A.A.S. elementary science this past summer. Video tapes were made of the teachers while they taught various lessons and teachers were able to analyze their verbal behavior by utilizing a modification of the Flanders System of Interaction Analysis. While no written data were gathered, teachers were unanimous in praise of the feedback they received through the use of the observational system.

The teacher in the classroom needs to be able to monitor his own teaching behavior systematically. Normally, he works alone. He often puts his trust in his own experience and tends to distrust and even resist research findings. This would not be so bad if his impressions of his behavior were accurate, but most of the time those impressions are misleading. Trained in an observational system, the teacher could monitor his teaching behavior by utilizing a tape recorder to record lessons which could be analyzed at a later time. But even better, a trained observer using a system with which the teacher was familiar, could make observations which would provide him with vital feedback. If the observer was a fellow teacher, visits could be exchanged. Each teacher could in turn serve as a feedback agent to the other and the benefits would double, since the observer would probably learn as much as the observed teacher.

In conclusion, interaction analysis is an effective feedback mechanism and teachers should have an opportunity to utilize feedback from systematic observations made of their own verbal behavior. Teachers trained in the skills of interaction analysis can become active participants in the evaluation of their teaching performances and move towards a means of providing continual self-improvement.

It is hoped that the study described in this paper and other studies dealing with teacher behavior will be replicated, but this should not prevent the classroom teacher from trying to verify the findings for himself in his own classroom. Observational systems offer no panacea for all the problems in teaching. They do serve as effective means for providing the teacher with the information necessary for improving his teaching performance.

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